SPRING/SUMMER EDITION 2011

MID-SOUTH CHRONICLE

JUNE 2011

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2011 DEADLY TORNADOES AND CATASTROPHIC FLOODING

BY BILL BORGHOFF, GENERAL FORECASTER

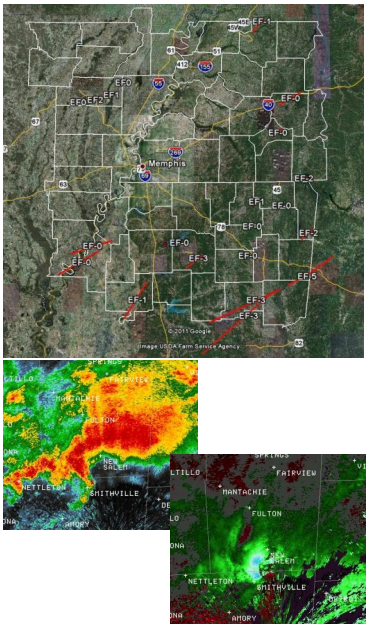
It was an incredibly active spring season for the Mid-south weatherwise. Several rounds of severe thunderstorms produced large hail, damaging winds, and tornadoes in April and early May. Very heavy rainfall also fell during late April from repeated thunderstorm complexes, leaving behind widespread, significant flooding and greatly impacting thousands living along rivers or traveling through the region.

Before and after pictures of a town hit by an EF5 tornado from April 27, 2011.

Tornadoes

On April 27, one of the worst tornado outbreaks to affect the United States in modern times slammed the eastern states. Out of the roughly 300 preliminary tornado reports stretching from Mississippi to New York state, 31 of these were killer tornadoes causing some 317 fatalities. For the Mid-south, 21 confirmed tornadoes developed from April 25th-27th, with 16 of these occurring during the main outbreak on the 27th.

Four EF5 tornadoes formed on the April 27th Super Outbreak, including the Smithville EF5 with estimated winds of 205 mph. Sadly, 15 people lost their lives as the violent tornado ravaged the small town during the mid afternoon hours. Another strong tornado tore across Calhoun, Chickasaw, and Monroe counties in Mississippi causing another seven fatalities. This tornado was rated an EF3 with estimated winds of 150 mph and a path length of nearly 50 miles.



EF5 tornadoes are incredibly rare, occurring in about one out of every 1000 tornadoes.

For more information, please visit the event webpage at:

http://www.srh.noaa.gov/meg/?n=apr2011toroutbreakhome

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NATIONAL LEVEL EXERCISE 2011 - NEW MADRID SEISMIC EVENT

BY RICH OKULSKI, WARNING COORDINATION METEOROLOGIST

The National Weather Service Office in Memphis will participate in the National Level Exercise 2011 (NLE11) in several ways late this summer. We are sending an emergency response meteorologist to the Federal Incident Command Post in Memphis for three days to provide weather information to exercise decision makers. We are also conducting an internal tabletop exercise with surrounding offices and our Regional Headquarters.

What would happen to our office if a major earthquake (Magnitude 6.5 or greater) occurred along the New Madrid Seismic Zone? If our office building was damaged beyond use, where would we go? How would we continue to support local and state emergency managers? We are reviewing our Continuity of Operations Plan (COOP) and collaborating with local emergency response officials in advance of this exercise to answer some of these questions and look for solutions.

2010—2011 MID-SOUTH WINTER SEASON REVIEW

BY CHRIS DUKE, METEOROLOGIST

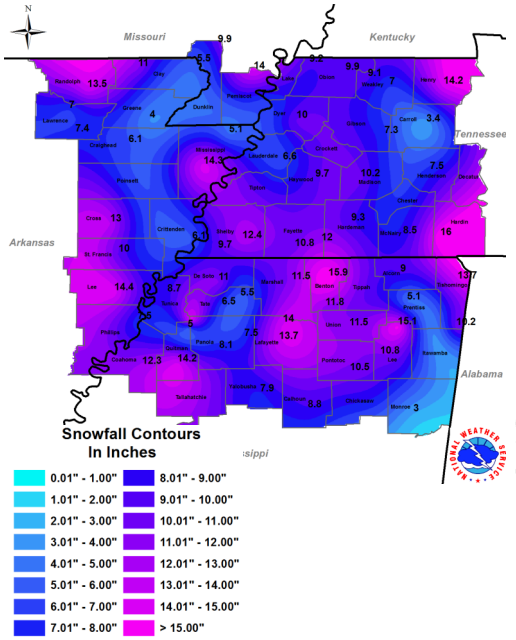
Last winter approached with a certain level of anxiety, as we were heading into a fairly strong La Nina pattern. La Nina winters are generally characterized by a heightened severe weather threat including tornadoes due in part to a more dynamic polar jet pattern across the eastern U.S. The recent tornado outbreaks of January 1999 and February 2008 occurred during a La Nina winter.

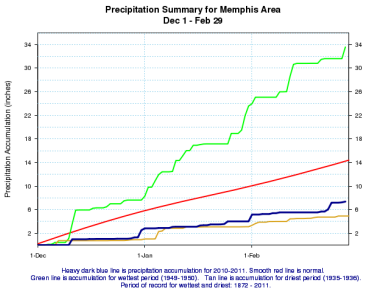
Due to the impending La Nina, the winter months were keyed on for the potential for spring-like severe weather. Instead, Mother Nature threw a curve ball. This two month period was highlighted by a total of five snow events that each impacted areas of the Mid-South differently. North Mississippi was hit particularly hard. Some areas received nearly 10 times their seasonal norms for snowfall. The Memphis Airport received 9.7 inches of snow for the season which was the most since the 1987-1988 winter season. Seasonal snowfall amounts have increased steadily in the Memphis area over the past three years. Interestingly, Memphis experienced a total of 6 days with measurable snowfall this winter which was the most since the 1984-1985 winter season. Contrastingly, severe weather was very minimal, most of which was relegated to a single event on February 24th that produced one EF-2 tornado in Decatur County, Tennessee.

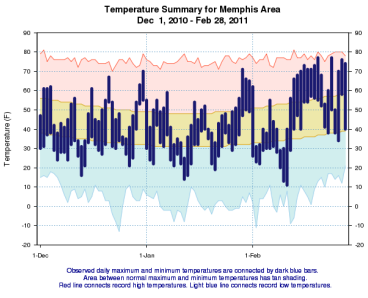
Through the course of the entire winter season, there was no one particular area that did not receive measurable snowfall. Total snowfall amounts ranged from 3 inches in Aberdeen, Mississippi to 16 inches in Savannah, Tennessee. The map below is a graphical depiction of total accumulated snowfall this past winter season using all climatological and cooperative sites around the WFO Memphis CWA. Copious amounts of snowfall were spread intermittently across the Mid-South.

Despite significant snowfall amounts, the Memphis area only received roughly 50% of normal rainfall for the entire winter season. This allowed the ongoing drought from last fall to persist through the winter with D2 (severe) conditions prevailing across much of the Mid-South and D-3 (extreme) conditions in the Missouri Bootheel and extreme northwest Tennessee counties.

Overall, temperatures ended up only slightly below normal for the Memphis area. However, at first it seemed as though we were on pace for a very cold winter. December saw 20 of 31 days with below normal temperatures for the Memphis area with a total of 756 heating degree days; the most for the month of December since 2000, which incidentally was the third coldest December on record. As a whole, temperatures would slowly rebound through January and February with the two month period averaging slightly above normal.







Summer Heat Safety Tips:

-Wear light colored, loose fitting clothing

-Avoid extreme heat outdoors and stay out of the sun

-Stay in an air-conditioned environment

-Eliminate strenuous activity

-Eat less foods that increase metabolic activity and water loss

Signs of heat exhaustion:

Heavy sweating, weakness, skin cold, pale and clammy. Pulse thready. Normal temperature possible. Fainting and vomiting.

First aid: Get victim out of sun. Lay down and loosen clothing. Apply cool, wet cloths. Fan or move victim to air conditioned room. Sips of water.

Signs of heat stroke:

High body temperature (106° F or higher). Hot dry skin. Rapid and strong pulse. Possible unconsciousness.

First aid: *Severe medical emergency...call 911!* Move the victim to a cooler environment. Reduce body temperature with cool bath or by sponging.

Visit us on the web at :

http://www.weather.gov/memphis

SPRING SPOTTER SEASON 2011

BY JIM BRANDA, GENERAL FORECASTER

Welcome back to the spring season 2011 spotter review. The first class this season was in Fulton Mississippi on Jan 25th with a crowd of about 50, the last class was a reschedule in Cherry Valley Arkansas on April 11th. Big thanks go out to those who were flexible in the rescheduling of classes due to severe weather or winter weather. For everyone out there we do appreciate our spotter's dedication and volunteerism in keeping the Mid-South safe. Your efforts have **SAVED LIVES!!**

The spring 2011 severe weather season started off earlier this year than last year mainly due to a La Nina pattern setup across the U.S. and it remained very active especially in April. Severe weather came quickly to the area on February 24th, less than three weeks after winter weather affected the region. Several storms produced straight line wind damage in the 70-80mph range. After extensive damage surveys the following days, only one tornado was confirmed in Decatur County, TN. It was rated as an EF2, with tombstones pulled out of the ground and numerous farm buildings destroyed. Estimated wind gusts to 95 mph also occurred in Poinsett and Crittenden counties in Eastern Arkansas were several homes and business suffered roof damage. The Mid-South was then given about a four week break in activity with the next event occurring on March 26th. This severe weather setup turned out to be more favorable for large hail…with the majority of reports coming back to our office from northern Mississippi. Hail sizes were mainly in the quarter to half dollar size across the state, however one report of golf-ball size originated in Marshall County. A few high wind reports were also received earlier that morning across Northeast Arkansas in the Forrest City and Blytheville communities. Some of the storms re-fired later that night across Northeast Mississippi and few counties saw more quarter size hail after midnight on the 27th.

The next large event came to the area on April 4th with more widespread severe wind damage. The hardest hit areas were across Shelby County TN, DeSoto County MS, and parts of Henderson and Decatur Counties in Tennessee. Two reports of estimated 80mph wind gusts came in during the early afternoon hours with several trees down, traffic lights inoperable and numerous homes and buildings receiving roof damage. A few surveys were completed the following day with no discovered tornado damage. With a very active pattern setting up over the central U.S., the Mid-South would be favored again for severe weather on April 11th with wind gusts of 60-70mph sweeping through northeast Arkansas and northwest Tennessee. Fortunately, damage was significantly less than the week prior, with just a few barn roofs being damaged or destroyed. On Friday April 15th, the skies would open up again with a deadly squall line that tracked across the area. Winds in excess of hurricane force (74mph) did plenty of damage in St. Francis and Crittenden Counties in East Arkansas and DeSoto and Marshall Counties in Northwest Mississippi. Later that day new storms built in the afternoon producing quarter size hail in Mississippi and west Tennessee. Luckily, the MidSouth remained north of the deadly tornadic storms that hit central Mississippi and Alabama. It wasn't long, and the severe weather threat came back across the region on April 19th with another widespread straight line wind event. Winds of 70-85 mph swept across northeast Arkansas, southeast Missouri and west Tennessee. Hardest hit areas were Paragould AR, New Bern, TN and Milan, TN. Then later on the 20th further south, east central Arkansas and north Mississippi got into the game with large hail and strong winds. Hardest hit areas were Oxford, MS receiving golf-ball size hail and strong winds caused damage from Calhoun City to Houston to Shannon MS.

This would only be the starting point as the region would see its most active outbreak since April 1974. The period from Sunday April 24th through Wednesday April 27th turned deadly. Numerous tornadoes occurred on the 26th and 27th rated from EF0 through EF5. Northern Monroe County would be hardest hit as one tornado tracked overnight Tuesday and the other Wednesday afternoon. These tracks crossed paths near New Wren. The small community of Smithville experienced the worst damage and the tornado rating was an EF5 with wins of 205 mph. Other strong tornadoes hit near Oxford, MS and across Tishomingo County, MS. **A very appreciative thank you from all of us in the office for the dedicated Spotters, Emergency Management, Law/Fire officials, and Ham Radio Operators who without hesitation risked their lives storm spotting, relaying communications, that led to saving hundreds of lives during this record outbreak.**

Please stay safe and remember you can always attend a fall spotter class later this year as a refresher, no matter how long it's been since you were first trained. Please email me at jim.branda@noaa.gov if you would like to set up a fall course which runs from 25 August through roughly 10 November. For those wanting to attend you can check out our website at: http://www.srh.noaa.gov/meg/?n=skywarn_meetings to find the class closest to you. See you this fall!

Storm Spotter Focal Point,
Jim Branda

2011 DEADLY TORNADOES AND CATASTROPHIC FLOODING

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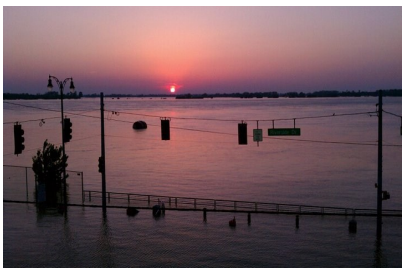
Flooding

Rounds of heavy rainfall across the Ohio Valley and mid and lower Mississippi valley, in conjunction with springtime flooding from melting snow across the north led to the second worst flood on the Mississippi River since records have been kept. Only the 1937 flood is considered worse. Most of Memphis was spared, but surrounding low lying communities were significantly flooded. Other smaller rivers such as the Saint Francis and Black also reached major or record flood stage. A 23-mile stretch of I-40 had to close for a prolonged period of time due to river flooding, diverting traffic over a hundred miles.



Sun setting over flooded Mississippi River at Memphis. Stage of 47.78 ft. Photo taken at Beale St at Riverside Dr. on May 9, 2011.

WSR-88D (RADAR) HAS MANY USES...WEATHER IS NOT THE ONLY ONE

BY DEAN KLIMT, ELECTRONIC SYSTEMS ANALYST

During the course of my career, the National Weather Service has significantly improved in the area of employee safety. Specifically, electronics technician (ET) safety. When I first joined up in March of 1994, the state of safety in the NWS was basically non-existent. The "TWO MAN RULE" which is a safety dogma for everything from parachuting to scuba diving was basically laughed at by the NWS—mostly from the old guard of ETs, the very guys that should have been fighting for our rights to have a safe working environment. I was routinely asked to go to remote areas of Louisiana and free climb 10-meter towers.

The safety belt that they issued to you was never inspected to see if it was safe to use. My favorite site was the criminal justice facility in Gulfport MS, which had a fifty foot tower on top of a two story building. The looks I used to get walking into that building with all my equipment. They always wondered if I was there to break someone out of jail. Having the tools, ropes, and climbing belt with me going on top of the building must have given them some concern.

Throw in the rusted out river gauge platforms we had to crawl out on, in the middle of a bridge on a busy two lane highway. I actually have received hazardous duty pay for some of the river gauges we serviced. Safety was clearly not on the front burner of importance for the NWS.

Let us time warp to the present. Safety has become of paramount importance. All the ET's have been issued their very own custom fitted climbing harness and have been to the NWS Training Center where they received training on how to properly climb and rescue people from a tower. Only on the rarest of occasions do we send out one technician to repair equipment at a remote site. We have lockout tagout procedures so de-energized upper air equipment cannot be re-energized while I am outside working. We receive biannual training in CPR and First Aid. We have an AED in the office and have received training on how to use the device. Employees also have access to personal protective equipment.

In April, we had participants from the Millington Fire Department and the Naval Air Station Fire Department practicing their tower rescue techniques on the WSR-88D tower. They made a couple of days out of it. Pretty cool having them practice rescue techniques on the very tower they may have to actually rescue someone. More than likely it would be me, but it could be Maggie Trippany or Rob Berry (ETs). So it is a good thing after all.

How many remember the "In Living Color" character Fire Marshall Bill. Well, we have Safety Marshall Jim [Belles, Meteorologist In Charge]. Safety Marshall Jim has taken the office safety plan to new heights. So once a month, Z [Zwemer Ingram, Data Acquisition Program Manager] and Jim take a chapter from the safety manual, go through it and check to see if we are compliant. They perform a monthly safety walk around, identify potential safety issues and take corrective action. We have our annual fire and shelter-in-place drills, although we may not always take these exercises as seriously as we should, it is nice to know that there are people looking out for our best interest.

A participant lowers a dummy from the radar tower.

DON'T BE LEFT OUT OF THE KNOW!!

BY JIM BELLES, METEOROLOGIST IN CHARGE

Did you hear about the big Snowstorm for Tuesday night? How about the severe weather they are talking about for early next week? Those are common questions people ask who rely on accurate weather information to make their decisions.

But how do you know about such events if you have not read or heard? That's a fair question with a simple answer. Check out the National Weather Service website at: www.weather.gov/memphis

Our office is committed to making sure that for any weather event, whether great or small, that it is within easy reach of finding out. For instance, if you want to know the threat for hazardous weather for the next seven days in the Mid-South, then check out the Hazardous Weather Outlook. This service can be found at:

www.srh.noaa.gov/meg/?n=hazardousweatheroutlook

And for threats across the region see our "Weather Briefing" page at:

www.srh.noaa.gov/meg/dss.php

One interesting service that we provide is the actual forecast reasoning of meteorologists at the National Weather Service in Memphis. This is important information since uncertainty can be addressed. Also, one is able to gain a greater understanding of why threats may occur. This information is called the "Area Forecast Discussion" and is found at:

http://forecast.weather.gov/product.php?site=MEG&issuedby=MEG&product=AFD&format=CI&version=1&glossary=1

Graphics are a quick and effective way of describing the evolution of not only the forecast, but also what may have occurred in the past. We have two locations that show graphically our prediction of future weather and weather observations right now and in the past. Our Graphicast site is located at:

www.srh.noaa.gov/meg/?n=graphicast

And our weather observations site is located at:

www.srh.noaa.gov/meg/?n=currentweather

Accurate and up to date weather information is critical for helping make certain decisions. Make sure you are in the know, so that nothing catches you off guard. The National Weather Service website is designed to highlight threats for hazardous weather so that you can be prepared.

2011 HURRICANE SEASON SET TO BE VERY ACTIVE

BY BILL BORGHOFF, GENERAL FORECASTER

The National Oceanic and Atmospheric Administration (NOAA) is predicting an above normal hurricane season for 2011. In their Atlantic hurricane season outlook issued on May 27, NOAA indicates a 70 percent probability of 12—18 named storms, 6—10 hurricanes, and 3—6 major hurricanes (category 3 or higher) during the six-month season that began on June 1.

The outlook ranges exceed the seasonal average of 11 named storms, six hurricanes and two major hurricanes. The very active season brings an enhanced likelihood of one or several U.S. landfalls which underscores the importance of having a hurricane preparedness plan in place.

Last year was another very active season, but given the pattern of upper winds throughout much of the season, the U.S. was spared from any landfalling hurricanes.

Luckily for the Midsouth, we are far enough inland to be spared from the brunt of these violent

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NEVER leave children or pets in parked cars!

Each year children die from hyperthermia as a result of being left enclosed in parked vehicles. Hyperthermia is an acute condition that occurs when the body absorbs more heat than it can dissipate.

This can occur even on a mild day. Studies have shown that the temperature inside a parked vehicle can rise rapidly to a dangerous level for children, adults, and pets.

Leaving the windows slightly open does not significantly decrease the heating rate. The effects can be more severe on children because their bodies warm at a faster rate than adults.

Remember, heat is the number one weather killer!

Write to us at :

National Weather Service

7777 Walnut Grove Road, OM-1

Memphis, TN 38120

2011 HURRICANE SEASON SET TO BE VERY ACTIVE

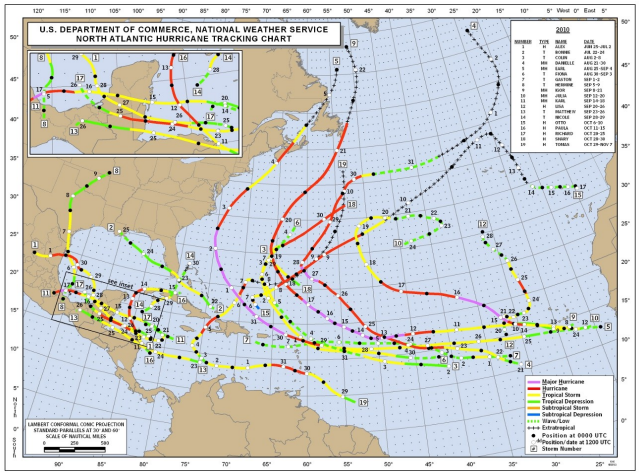
(CONTINUED FROM PAGE 5)

storms. However, we sometimes do see the remnants of, or a rapidly weakening cyclone pass across the region, bringing flooding rains, strong winds, and tornadoes.

Three reasons that suggest an active hurricane season is in store include:

- The continuing high activity era. Since 1995, the tropical multi-decadal signal has brought ocean and atmospheric conditions conducive for development in sync, leading to more active Atlantic hurricane seasons.
- Warm Atlantic Ocean water. Sea surface temperatures where storms often develop and move across the Atlantic are up to two degrees Fahrenheit warmer-than-average.
- La Niña, which continues to weaken in the equatorial Pacific Ocean, is expected to dissipate later this month or in June, but its impacts such as reduced wind shear are expected to continue into the hurricane season.

The Atlantic names for this hurricane season include, Arlene, Bret, Cindy, Don, Emily, Franklin, Gert, Harvey, Irene, Jose, Katia, Lee, Maria, Nate, Ophelia, Philippe, Rina, Sean, Tammy, Vince, and Whitney. If the number of storms exceed the number of names on this list, the Greek alphabet will be used for subsequent storms.



2010 hurricane season storm tracks.

ANOTHER NOAA WEATHER RADIO TRANSMITTER COMING SOON

BY COREY CHASKELSON, NOAA WEATHER RADIO PROGRAM LEADER

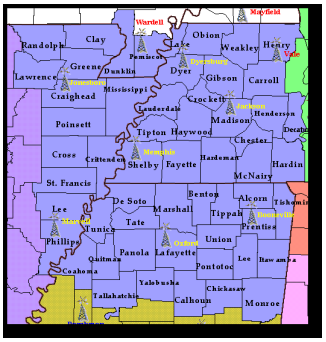
A new NOAA Weather Radio transmitter will be installed and soon in Monroe county, Mississippi this summer. This new transmitter will provide better reception of broadcasts originating from the National Weather Service Forecast Office in Memphis, Tennessee to Monroe county and the immediate surrounding areas.

NOAA "All Hazards" weather radio broadcasts watches, warnings, forecasts, and non-weather related hazards 24 hours a day. Did you know that a warning or alert issued can be disseminated on NOAA "All Hazards" Weather Radio in as little as 30 seconds?! Seconds count when severe weather or a non-weather related emergency is approaching your community, especially at night.

Specific Area Message Encoding (SAME) technology allows you to program only the location(s) that will affect you. Most importantly, NOAA Weather radios can be powered by batteries when commercial power is lost. We will be providing additional information on this new transmitter soon in the coming weeks. Stay tuned!

For more information about NOAA "All Hazards Weather Radio, visit our website at:

http://www.srh.noaa.gov/meg/?n=allhazardsradio



NOAA Weather Radio Transmitters :

Memphis, TN 162.475 Mhz

Jackson , TN 162.55 Mhz

Jonesboro, AR 162.55 Mhz

Booneville, MS 162.40 Mhz

Oxford, MS 162.55 Mhz

Dyersburg, TN 162.50 Mhz

Wardell, MO 162.525 Mhz

Vale, TN 162.45 Mhz

Marvell 162.525 Mhz

All Hazards NOAA Weather Radio
NOAA's National Weather Service